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ABSTRACT

A backward chaining procedure was used to train a 6-year-old blind, nonverbal, severely mentally retarded boy to dress himself. Trainers performed three types of procedures: no help, verbal instructions, and physical guidance and instructions. Results indicated that the procedure was successful in teaching the skills necessary for dressing, that generalization of skills occurred, and that followup data showed maintenance of dressing skills. (SBH)

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Teaching Dressing Skills to a Blind Multihandicapped Six Year Old

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Running head: Teaching Dressing Skills

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Abstract

Literature dealing with the blind multihandicapped is often difficult to locate. The present study utilized a backward chaining procedure to train a blind multihandicapped child to dress himself. The procedure was modified from a program developed for the sighted retardate. An in-depth description of the dressing sequence is presented, along with alterations that may be beneficial for those persons working with the blind retarded.

Teaching Dressing Skills

to a Blind Multihandicapped Six Year Old

The need to develop training programs to teach basic self-care skills to mentally retarded persons is generally recognized by professionals (Horner and Keilitz, 1975). Several programs have been demonstrated to be effective in training various classes of self-care behaviors to retarded populations, e.g., programs to train independent feeding (O'Brien, Bugle, and Azrin, 1972; O'Brien and Azrin, 1972), toothbrushing (Horner and Keilitz, 1975), and toileting (Foxx and Azrin ,1971; Mahoney, Van Wagenen, and Meyerson, 1971). Training retarded persons in basic dressing skills has been mentioned as a prerequisite to successful toilet training (Foxx and Azrin, 1971), and simplified dressing programs are published in training manuals for parents of retarded children (Larsen and Bricker, 1968; Linford, Hipsher, and Silikovitz, 1972). However, the dressing programs which are currently available for persons interested in training retarded persons are limited by a lack of specificity in the description of

the component behaviors in the dressing sequence and the lack of detail in the description of the training procedures. Literature pertaining to training blind retarded persons in self-care skills is difficult to locate.

In the present study, information presented by Larsen and Bricker (1968) and Linford, Hipsher, and Silikovitz (1972) was combined and modified to accomodate training a blind retarded child to dress himself. Five articles of clothing were trained in a backward chaining fashion.

Training sessions were conducted in the child's home to enhance generalization of the program results (Mahoney et al., 1971). In addition, the child's mother was trained to perform maintenance procedures in the normal living environment since the use of newly-trained self-care skills is necessary for continued performance (O'Brien et al., 1972; Stolz and Wolf, 1969). Follow-up data were collected approximately one year after the study was terminated.

Method

Subject and Setting

The client was a six year old blind, non-verbal boy, who had been diagnosed as severely mentally retarded. He had been referred to the Drake University, Center for Human Development in the fall of 1974, due to excessive self-abusive behavior. In the Spring 1975, the state welfare agency requested the Center staff train the child in basic dressing skills. These skills were prerequisite for his participation in a toilet training project.

The sessions were conducted in a four foot by six foot cleared working area in the subject's bedroom. The client sat on both the bed and floor during training. The therapist sat next to the client, within reach of primary reinforcers which were kept on a small table. A data recorder was also present during training sessions.

Recording

Incorrect responses. All responses occurring during a session were recorded by the observer. Behavior that did not result in appropriate execution of the

dressing steps (See Table 1) was scored as incorrect.

Prompted responses. Behavior executed with the physical or verbal assistance of the therapist was scored as prompted. If the client failed to complete the step following a physical prompt, the response was scored as incorrect.

Correct responses. Behavior which resulted in successful completion of the step, and was executed with no physical of verbal assistance from the therapist, was scored as a correct response.

Insert Table 1 about here

Reliability. Reliability of recording was assessed by dividing the number of agreements between two independent observers by the number of agreements and disagreements, which yields percentage agreement. The mean reliability over the five sessions in which it was assessed was 94%.

Backward Chaining

To initiate training for acquisition of dressing skills, the entire sequence of necessary behaviors was broken down into smaller components. The final or terminal

behavior was taught first, and then the step immediately preceding it was taught. This process continued until all the steps in the dressing chain had been acquired. Training began with the shirt so the client would eventually dress by applying his underwear, socks, pants, and shirt, respectively.

Shirt. The pullover shirt is the last article of introduced clothing in the dressing sequence. The behaviors needed to put the shirt on were also taught in steps, with the terminal step being taught first. This means the client was trained to pull the shirt over his head before he was trained to put his hand through the arm holes. (See Table 1 for specific response definitions and order of training.)

Pants. Following acquisition of the skills necessary for application of the shirt, sequence training for elastic waisted pants began. Again, the client was first taught the terminal skill in the chain needed for putting on his pants. (See Table 1.)

Socks. Skills needed for application of heelless socks were taught next. (See Table 1.)

Underwear. Skills necessary for underwear were

taught last. (See Table 1.)

Procedure

Baseline. A ten trial baseline for each clothing article in the dressing sequence was conducted. The therapist placed the client's hands on the clothing article and said, "(Name), put on your (article).". Responses were recorded as mentioned previously in the recording section.

Acquisition. Trainers performed three types of procedures: (1) No Help, (2) Verbal Instructions and (3) Physical Guidance and Instructions. Physical Guidance was used if the client failed to respond to a request to put on an article of clothing, or, if he attempted to respond but did not exhibit the proper movements for successful completion. Guiding the client through initial movements, when necessary, blocks acquisition of less successful behavior.

"Verbal Instructions" were used when the client was being physically guided through movememts and when guidance was no longer necessary. "Verbal Instructions" were discontinued as soon as the client had exhibited the proper behavior at least once.

The "No Help" procedure meant the client performed the proper behavior with neither of the training prompts (Physical Guidance and Verbal Instructions).

As acquisition training progressed, the number of training procedures applied to a step decreased. In this way, "Physical Guidance" and "Verbal Instructions" could be faded when they were no longer necessary.

Following step acquisition, the preceding link in the cressing chain was introduced. The criterion for step acquisition was defined as four out of five trials scored correct with "No Help" from the trainers.

Each step was introduced by requesting the client to perform the appropriate skill, e.g., "(Name), pull down your shirt.". Successive approximations to the correct response were reinforced with primary reinforcers paired with verbal commendation. Tickling and brief rest periods were also programmed. Dressing steps were trained according to the description and sequence represented in Table 1.

Maintenance. Each session began with a review of the dressing skills acquired during previous sessions. This assured further practice and continued performance.

The mother was also instructed in procedures for maintenance of acquired skills. Following successful training of a clothing article, the mother was instructed to reinforce the client when he successfully completed the behavior, but to no longer assist. If the client had trouble, they were to begin again. The trainers first modeled appropriate behavior, and then observed the mother implement the procedure. Verbal feedback was introduced when necessary.

Follow-up. Follow-up data was collected eleven months after acquisition of the entire sequence of dressing skills.

Results

During baseline trials, the client failed to successfully put on any of the articles of clothing being used in training. Acquisition and maintenance training data are presented in Figure 1. The data in the acquisition phase represent the most advanced step in the dressing sequence which was learned to criterion (i.e., four out of five successful, unassisted trials) in each session. For example, the data point plotted on step three for the first session indicates that steps one, two, and three were all acquired to the

established criterion during the session. Steps four and eleven in the shirt and pants sequence were the only steps that required training in more than one session before criterion was met.

The data in the maintenance phase of Figure 1 indicate the client successfully put on each of the clothing articles learned to criterion in a previous session. Typically the review trials were conducted until the client performed successfully without prompts on four out of five trials. In several sessions, however, if the first reivew trial was correct, the rest of the review trials were dropped.

Insert Figure 1 about here

Figure 1 also presents data which were collected eleven months after the dressing training was completed. Adequate performance on each clothing article was maintained. These follow-up data are based on a single trial for each clothing article.

The number of trials which were necessary before the training criterion was met for each step of the dressing sequence is presented in Figure 2. For example, one hundred seventy-two trials were required to train step four of the shirt sequence, the step that first required

the client to put his arms through the arm holes of the shirt. The client repeatedly put one arm through the neck hole until a smaller shirt was substituted for the original oversized shirt. The client's total sight deficit made steps six, eleven, sixteen, eighteen, and nineteen, associated with loss of contact of each clothing article, difficult to acquire. For these steps the clothing article would be positioned near the client, but his hands or feet would not be in contact when the request to dress was given.

During acquisition training for step eleven in the pants sequence, smaller elastic waisted pants were substituted for the original oversized pants. The client repeatedly put both legs in one pant leg, so a smaller size blocked the mistake.

Acquisition training was completed in three hundred forty trials for the shirt, three hundred forty-four trials for the pants, seventy-seven trials for the two socks, and fifteen trials for the underwear. Total session time was approximately twenty-two hours, distributed over fifteen sessions in ten weeks.

Insert Figure 2 about here

Discussion

The backward chaining dressing sequence presented by Larsen and Bricker (1968) and Linford, Hipsher, and Silikovitz (1972) can be easily modified to accomodate the blind multihandicapped.

The present procedure successfully taught the skills necessary for applying articles of clothing. The client usually wore pullover shirts, so training began with a shirt which was oversized as recommended by Linford et al., (1972). As training progressed, it became apparent the oversized shirt was allowing the client too much physical freedom with a result of repeated unsuccessful attempts. Reducing the size of the shirt may have produced more discriminitive cues. It was observed that the client held both arms against the sides of his shirt when attempting to locate the arm holes. The oversized shirt made this maneuver awkward.

The client always wore elastic waisted pants, so training began with a pair which were oversized as recommended by Linford et at., (1972). When the client continued to repeatedly put both legs into the same pant leg, smaller pants were substituted. This may

have facilitated discrimination of the leg holes.

Heelless socks were used throughout the study which greatly simplified training.

Generalization of skills was apparent when training began on the second sock, and when training began on underwear.

The follow-up data indicates maintenance of the dressing skills. In addition to exhibiting all the skills taught nearly a year prior, the client also had acquired the ability to put on tennis shoes. The mother reported whe would always allow the clild to dress without assistance. When the child did make a mistake, they would start over.

Future research should be devoted to developing steps for training that would inable the blind multihandicapped individual to exhibit even more extensive self-care skills. For instance, the individual could select clothes from a bedroom dresser and then put them on.

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TABLE 1

DESCRIPTION OF DRESSING STEPS

SHIRT

1. Pull arms down and force shirt over head. The client is in a sitting position. His arms are straight above his head and through the arm holes. The shirt is gathered around his shoulder. When the client lowers his arms, his head protrudes through the neck hole.
2. Gather shirt and guide from mid-arm. The client is in a sitting position. His arms are through the arm holes and the shirt is gathered around his shoulders. The client raises his arms and puts the shirt on over his head.
3. Gather shirt and guide from waist. The client is in a sitting position. His hands are barely through the arm holes and the shirt is gathered around his forearms. The client raises his arms and puts the shirt on over his head.
4. Put hands through arm holes. The client is in a sitting position. The shirt is positioned on the client's lap with the waist hole toward the client's body. The hands are placed inside the waist hole, each hand touching one

(Table 1 Continued)

side of the shirt. The client slips his arms up through the arm holes, raises his arms, and puts the shirt on over his head.

5. Put hands through waist hole. The client is in a sitting position. The shirt is positioned on the client's lap with the waist hole woward the client's body. The client's hands are not in contact with the shirt when the trial begins. The client locates the waist hole with his hands and puts the shirt on.
6. Put shirt on from standing position. The client is in a standing position. The shirt is positioned on the bed with the waist hole facing the edge of the bed. The client's hands are not in contact with the shirt when the trial begins. The client locates the waist hole and puts the shirt on.

PANTS

7. Pull up pants from mid-hip. The client is standing. His feet are through the pants holes and the pants are gathered around the mid-hip line. The client pulls his pants up.
8. Pull up pants from knees. The client is standing. His feet are through the pants holes and the pants are gathered around the knees. The client pulls his pants up.

(Table 1 Continued)

9. Pull up pants from ankles. The client is standing. His feet are through the pants holes and the pants are gathered around the ankles. The client pulls his pants up.
10. Gather pants on legs and stand. The client is sitting on the floor. His toes are inside the waist hole. He pulls the pants up the legs until his feet are through the pants holes. He stands and pulls his pants up.
11. Put feet through waist hole. The client is sitting on the floor. The pants are positioned near but not touching his feet. He puts his toes inside the waist hole, pulls the pants up his legs until his feet are through the pants holes. He stands and pulls his pants up.

SOCKS

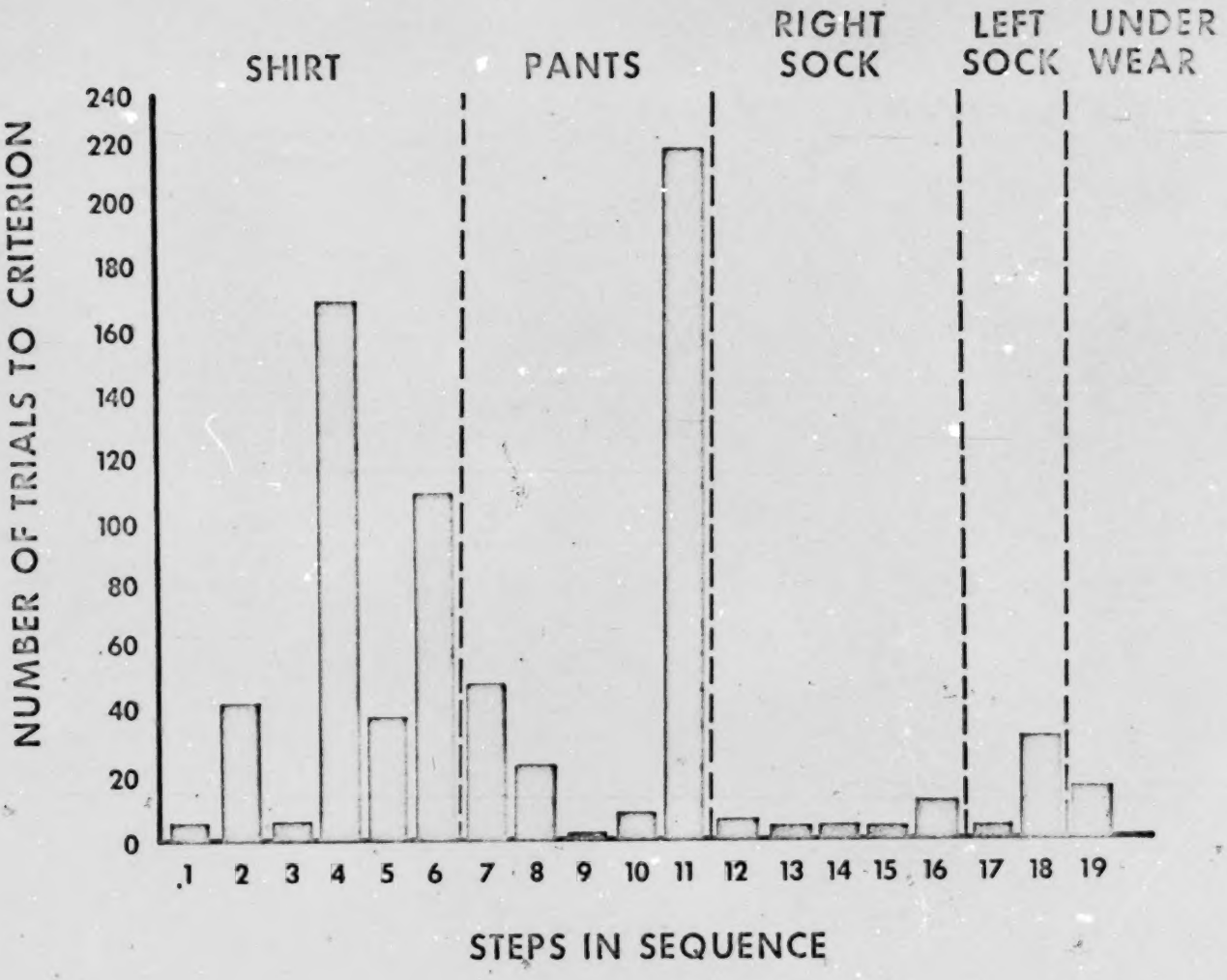
12. Pull up sock from ankle. The client is sitting on the floor. The sock is gathered around the ankle. The client pulls the sock up.
13. Pull up sock from mid-heel. The client is sitting on the floor. The sock is gathered around the heel. The client pulls the sock up.

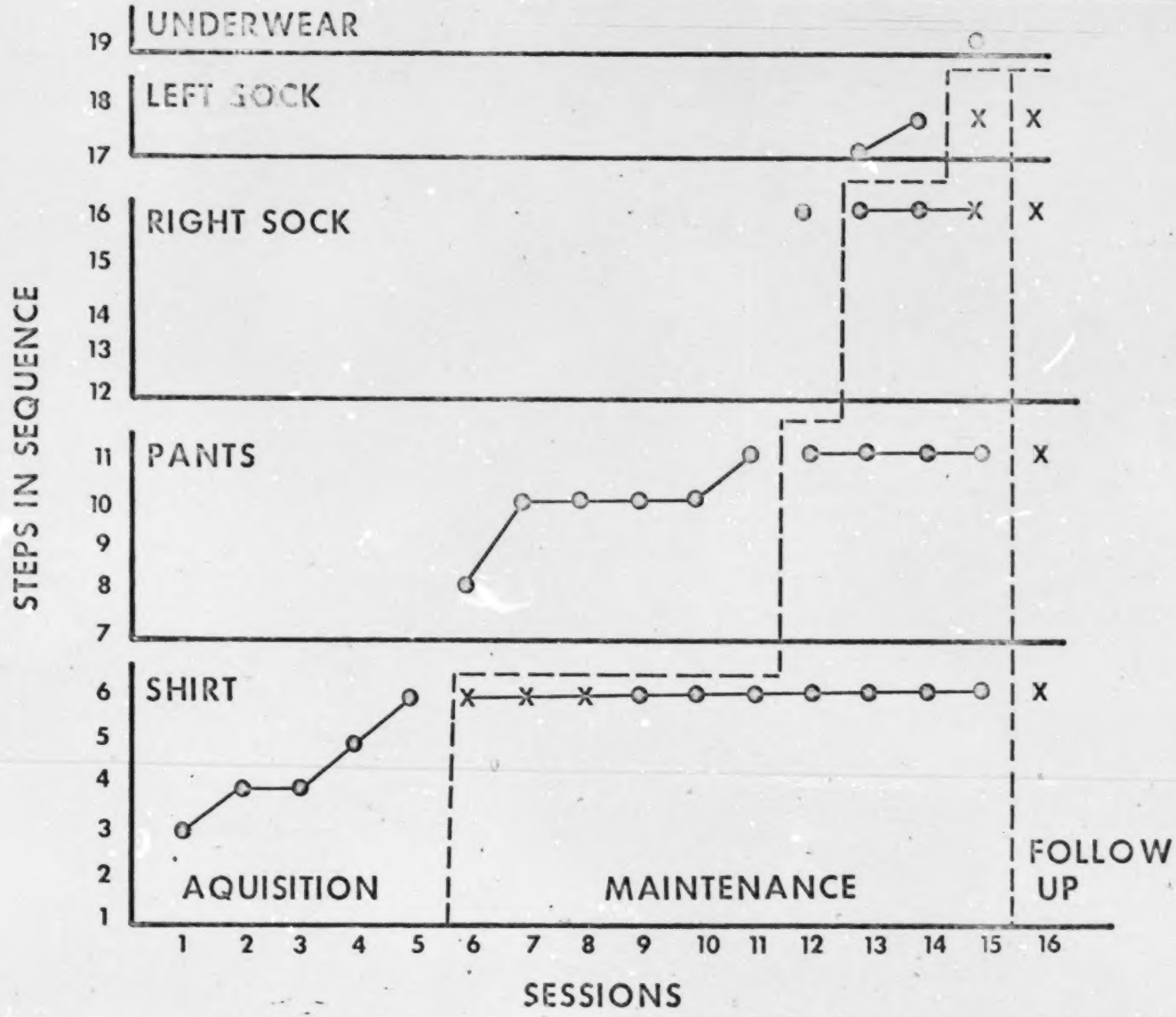
(Table 1 Continued)

14. Pull up sock from mid-arch. The client is sitting on the floor. The sock is gathered around the mid-arch. The client pulls the sock up.
15. Pull up sock from toes. The client is sitting on the floor. His toes are barely within the sock opening. The client pulls the sock on.
16. Put foot through opening. The client is sitting on the floor. The sock is positioned near but not touching the foot. The client locates the sock and puts his toes in the opening. The client pulls the sock on.
17. Repeat step 15 for training other sock.
18. Repeat step 16 for training other sock. Generalization should not be expected. Training on steps 12-16 may be required.

UNDERWEAR

19. Repeat step 11 for training underwear. Generalization should not be expected. Training on steps 7-11 may be required.


SHIRT
PANTS
RIGHT SOCK
LEFT SOCK
UNDER WEAR
NUMBER OF TRIALS TO CRITERION
240
220
200
180
160
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
STEPS IN SEQUENCE


UNDERWEAR
LEFT SOCK
RIGHT SOCK
PANTS
SHIRT
STEPS IN SEQUENCE
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
X
AQUISITION
MAINTENANCE
FOLLOW UP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
SESSIONS